El Paso Natural Gas Company

El Paso, Texas

April 4, 1957

DIRECT REPLY TO:
P. O. BOX 997
FARMINGTON, NEW MEXICO

Mr. A. L. Porter
Secretary and Director
Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Dear Sir:

This is to request administrative approval of a well dually completed in the Blanco-Mesa Verde and Aztec Pictured Cliffs Extension Pools. The El Paso Natural Gas Company Heaton No. 9 (PM) is located 990 feet from the North line, 1490 feet from the East line, Section 32, Township 31 North, Range 11 West, N.M.P.M., San Juan County, New Mexico. This well is completed in the Point Lookout member of the Mesa Verde formation and in the Pictured Cliffs formation. Completion has been accomplished in the following manner:

1. 10-3/4" surface casing set at 171' with 150 sacks of cement circulated to surface.
2. 7-5/8" intermediate casing set at 4558' with 300 sacks of cement.
3. 5-1/2" liner set from 4508' to 4902' with 110 sacks of cement.
4. Protection of the Pictured Cliffs formation was accomplished by circulating cement behind 7-5/8" casing before perforating. The casing and liner were both tested for leaks. None were found.
5. The Point Lookout formation was perforated with 3 intervals and sand-water fraced through the 5-1/2" liner.
6. The Pictured Cliffs formation was perforated with 2 intervals and sand-water fraced through the 7-5/8" casing.
7. After cleaning out both formations a 2" EUE tubing was run with a Baker Model "EGJ" production packer to separate the Mesa Verde and Pictured Cliffs formations. The Mesa Verde formation will be produced through the 2" tubing.
8. The Pictured Cliffs formation will be produced through the 7-5/8" casing. A syphon string consisting of 1-1/4" line pipe was run to a point opposite the Pictured Cliffs formation.

COPY

9. A Garrett circulating sleeve was installed in the 2" tubing string just below the Pictured Cliffs perforation. This sleeve will enable bottom hole pressure surveys to be taken if they are required at a future date.
10. Initial potential tests have been run and commercial production has been found from both zones. Also a packer leakage test has been run and witnessed by the Aztec Oil Conservation Commission office. This test shows no communication in the well bore between the two producing formations.

Administrative approval is asked for this dual completion to allow production from both known producing formations without the high initial cost of drilling two wells.

The offset operators of this dual completion have been notified and I am enclosing copies of the letters waiving any objections to it. Also enclosed are:

(a) Two copies of the schematic diagram of the mechanical installations.
(b) Two copies of an affidavit from the packer setting company stating that the packer used was set at the depth shown.
(c) Two copies of the packer leakage tests as observed by a member of the Oil Conservation Commission.
(d) Two copies of the initial potential test showing commercial production in these zones.
(e) Two copies of plats showing location of this well and offset operators.

It is intended to dedicate the E/2 of Section 32 to the Mesa Verde production and the NE/4 of Section 32 to the Pictured Cliffs production.

Any further information required will be furnished upon your request. Thank you for your consideration of this matter.

Yours very truly,

ORIGINAL SIGNED E. J. COEL

E. J. Coel
Senior Petroleum Engineer

EJC/gks

cc: Emery Arnold
R. L. Hamblin
Phil McGrath

ORIGINAL SIGNED E. J. [illegible]

EL PASO NATURAL GAS COMPANY

Box 997

Farmington, N.M.

March 20, 1957

Mr. E. C. Arnold
Oil Conservation Commission
120 East Chaco
Aztec, New Mexico

Re: Packer Leakage Test on the El Paso Natural Gas Company Well, Heaton # 9, NE 32-31-11

Dear Mr. Arnold:

This well was dually completed in the Pictured Cliffs and Mesa Verde formations. A Production Packer was set at 2475 feet. The Pictured Cliffs zone was tested March 13, 1957 with the following results:

SIPC - 635 (shut-in 11 days)
SIPT - 1063

The casing was opened at 11:35 A.M. and flowed three hours through a 3/4" choke.

Time	Casing Choke Pressure Psig	Temp. °F	Tubing Pressure Psig
11:35	635		1063
11:50	187		1062
12:05	134		1063
12:20	111		1063
12:35	106		1063
1:05	101		1063
1:35	95		1063
2:05	92		1063
2:35	89	60	1063

The calculated choke volume was 1376 MCF/day. After the well was shut-in seven days, the Mesa Verde zone was tested with the following results:

Pictured Cliffs - SIPC - 650 psig
Mesa Verde - SIPT - 1074 psig (shut-in 13 days)

The tubing was opened at 10:00 A.M. through a 3/4" positive choke and flowed for three hours.

Time	Tubing Choke Pressure Psig	Temp. °F	Casing Pressure Psig
10:00	Opened tubing		650
10:15	228		651
10:30	176		651
10:45	148		650
11:00	138		650
11:30	122		650
12:00	114		650
12:30	108		650
1:00	105	63	650

The calculated choke volume was 1574 MCF/day. The results of the tests obtained indicate that there is no packer leakage.

Very truly yours,

K. C. McBride

K. C. McBride
Gas Engineer

KCMcB/jla

cc: E. E. Alsup
D. H. Tucker
W. T. Hollis
W. M. Rodgers
Drilling Department
B. D. Adams
Roland Hamblin
Jack Purvis
W. V. Holik
C. C. Kennedy
E. J. Coel, Jr. (6)
A. J. Dudenhoeffer
Bill Parrish
Dean Rittmann
H. H. Lines
File

Form 23-24 Rev. 5-56

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

Date: March 13, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, HEATON # 9, San Juan County, New Mexico.

Tested By: K. C. McBride

Location ..... Sec. 32 T. 31 R. 11 ,990'N, 1495'E

Shut-In Pressure ..... SIPC 635 psig; SIPT 620 psig; (Shut-in 11 days)

0.750" Choke Volume ..... 1376 MCF/D @ 14.7 psia and 60° F. for 0.6 gravity gas. Flow through casing for 3 hours.

Calculated 3 Hour Absolute Open Flow ..... 1406 MCF/D

Working Pressure On tubing ..... = 91 Psig

Producing Formation ..... Pictured Cliffs

Stimulation Method ..... Sand Water Frac

Total Depth ..... 4900 - Packer at 2475. C/O - 4800'

Field ..... Undesignated

H_2S ..... Sweet to lead acetate.

SIPT (M.V.) - 1063

Lewis D. Galloway
L. D. Galloway

cc: D. H. Tucker
~~G. M. Hollis~~
W. T. Hollis
~~G. S. Wollard~~
W. M. Rodgers
~~Hoyle Brown~~
Drilling Department
B. D. Adams
Roland Hamblin
Jack Purvis
W. V. Holik
C. C. Kennedy
E. J. Coel, Jr. (6)
A. J. Dudenhoeffer
File

H. H. Lines
Bill Parrish
Dean Rittmann

Form 23-34 (Rev. 9-48)

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

Date: March 20, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, HEATON # 9, San Juan County, New Mexico.

Tested By: K. C. McBride

Location ..... Sec. 32 T. 31 R. 11 990'N, 1495'E

Shut-In Pressure ..... PC SIPC 650 psig ; (Shut-in 13 days)
MV SIPT 1074 psig

0.750" Choke Volume ..... 1574 MCF/D @ 14.7 psia and 60° F. for 0.6 gravity gas. Flow through tubing for 3 hours.

Calculated 3 Hour Absolute Open Flow ..... 1635 MCF/D

Working Pressure On Calculated ..... = 230 Psig

Producing Formation ..... Mesa Verde

Stimulation Method ..... Sand Water Frac

Total Depth ..... 4900 - c/o - 4800'

Field ..... Blanco

H_2S ..... Sweet to lead acetate.

Lewis D. Galloway
L. D. Galloway

cc: D. H. Tucker
~~[illegible]~~
W. T. Hollis
~~[illegible]~~
W. A. Rodgers
~~[illegible]~~
Drilling Department
B. D. Adams
Roland Hamblin
Jack Purvis
W. V. Holik
C. C. Kennedy
E. J. Coel, Jr. (6)
A. J. Dudenhoeffer
File

H. H. Lines
Bill Parrish
Dean Rittmann

EL PASO NATURAL GAS COMPANY

OPEN FLOW TEST DATA

DUAL COMPLETION

DATE March 20, 1957

Operator: El Paso Natural Gas Company		Lease: Heaton # 9	
Location: 990'N, 1495'E, Sec. 32-31-11		County: San Juan	State: New Mexico
Formation: Mesa Verde		Pool: Blanco	
Casing: Diameter 7 5/8	Set At: Feet 4549	Tubing: Diameter 2"	Set At: Feet 4689
Pay Zone: From 4651	To 4766	Total Depth: 4900 - c/o - 4800	
Stimulation Method: Sand Water Frac		Flow Through Casing	Flow Through Tubing X

Choke Size, Inches .750	Choke Constant: C 14.1605	5½" liner at 4902	
Shut-In Pressure, Casing, PSIG + 12 = PSIA 650 P.C.	Days Shut-In 13	Shut-In Pressure, Tubing PSIG + 12 = PSIA 1074	1086
Flowing Pressure: P PSIG + 12 = PSIA 105	117	Working Pressure: P_w Calculated PSIG + 12 = PSIA	242
Temperature: T 63 F Ft .75		Fpv (From Tables) 1.011	Gravity .678

CHOKE VOLUME: Q = C x P_t x F_t x F_g x F_{pv}

Q = 14.1605 x 117 x .9427 x .9971 x 1.011 = 1574 MCF/D

OPEN FLOW: Aof = Q $\left(\frac{P_c^2}{P_c^2 - P_w^2}\right)^n$

Aof = $\left(\frac{1,179,396}{1,120,832}\right)^n$ $(1.0523)^{.75}$ x 1574 = 1.0389 x 1574

Aof = 1635 MCF/D

TESTED BY: K. C. McBride

WITNESSED BY:

cc: (6) E. J. Coel, Jr.

L. D. Galloway

L. D. Galloway

EL PASO NATURAL GAS COMPANY

OPEN FLOW TEST DATA

DUAL COMPLETION

DATE March 13, 1957

Operator: El Paso Natural Gas Company		Lease: Heaton # 9	
Location: 990'N, 1495'E, Sec. 32-31-11		County: San Juan	State: New Mexico
Formation: Pictured Cliff		Pool: Undesignated	
Casing: Diameter 7 5/8	Set At: Feet 4549	Tubing: Diameter 2	Set At: Feet 4689
Perforations: From 2400	To 2442	Total Depth: 4900 - c/o - 4800' - Packer @ 2475	
Stimulation Method: Sand Water Frac		Flow Through Casing: X	Flow Through Tubing:

Choke Size, Inches: .750	Choke Constant: C 14.1605	5½" liner at 4902	
Shut-in Pressure, Casing: 635 PSIG	+ 12 = PSIA 647	Days Shut-in 11	Shut-in Pressure, Tubing: 620 PSIG + 12 = PSIA 632
Flowing Pressure: P 89 PSIG	+ 12 = PSIA 101		Working Pressure: Pw 91 PSIG + 12 = PSIA 103
Temperature: T 60 °F	n .85		Fpv (From Tables) 1.009 Gravity .660

SIPT (M.V.) - 1063 psig

CHOKE VOLUME: Q = C x P_t x F_t x F_g x F_{pv}

Q = 14.1605 x 101 x 1.000 x .9535 x 1.009 = 1376 MCF D

ACT. FLOW: Aof = Q $\left(\frac{P_c^2}{P_c^2 - P_w^2} \right)^n$

Aof = $\left(\frac{418,609}{408,000} \right)^n$ $(1.026)^{.85}$ x 1376 = 1.022 x 1376

Aof = 1406 MCF D

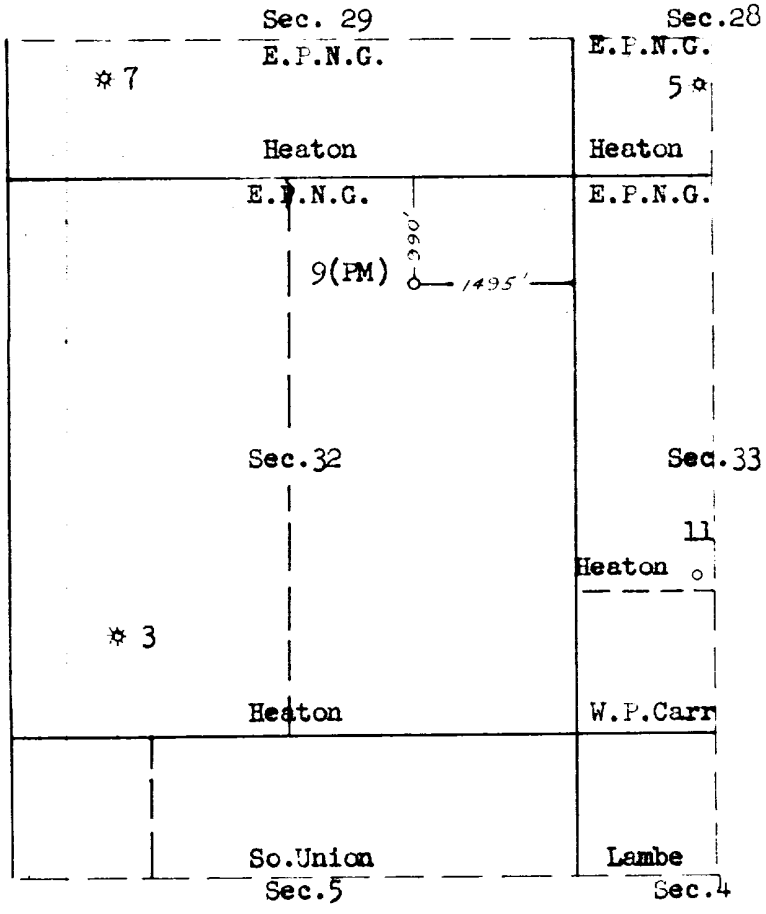
K. C. McBride

cc: (6) E. J. Coel, Jr.

L. D. Galloway

PLAT SHOWING LOCATION OF DUAL COMPLETED
EL PASO NATURAL GAS HEATON #9 (PM)
AND OFFSET ACREAGE

T-31-N R-11-W



EL PASO NATURAL GAS COMPANY
EL PASO, TEXAS

SCALE	DATE	No.
DRAWN BY	CHECKED BY	

STATE OF NEW MEXICO)
)
COUNTY OF SAN JUAN)

I, Mack M. Mahaffy, being first duly sworn upon my oath depose and say as follows:

I am an employee of Baker Oil Tools, Inc., and that on March 3, 1957, I was called to the location of the El Paso Natural Gas Company Heaton #9 (PM) Well located in the NE/4 of Section 32, Township 31 North, Range 11 West, N.M.P.M. for the purpose of installing a production packer. Under my direct supervision a Baker Model "EGJ" production packer was set at 4533 feet. The production packer was properly set in accordance with the usual practices and customs of the industry.

Mack M. Mahaffy

Mack M. Mahaffy

Subscribed and sworn to before me, a Notary Public in and for San Juan County, New Mexico, the 3rd day of April, 1957.

Paul D. Machacek

Notary Public in and for San Juan County, New Mexico

My commission expires:

Feb 24, 1960

SCHEMATIC DIAGRAM OF DUAL COMPLETION
EPNG HEATON NO. 9 (PM)
(NE Sec. 32 T31N-R11W)

Reference Point is 9.0' above
Tubing Hanger Flange.